Abstract

Title: The influence of whole-body electromyostimulation on muscle strength and body composition in healthy individuals

Objectives: The aim of the diploma thesis is to collect and give comprehensive theoretical information concerning the whole body electromyostimulation topic. Furthermore, find out what the effect of the whole body electromyostimulation method on body weight, fat-free mass, body fat and other parameters of body composition. The aim of this work is to verify whether it is possible to achieve changes in bone mineral density values by means of the WB-EMS method or to increase maximal isometric muscle strength in healthy individuals.

Methods: The diploma thesis is an intragroup experiment. The method of qualitative research was used for data collection. Bioelectric impedance analysis was used to evaluate body composition. DXA (Dual Energy X-Ray Absorptiometry) was used to assess bone mineral density and body composition, and isometric muscle strength was evaluated using isometric dynamometry. The research group consisted of 10 young and healthy probands (average age 23.9 years). Probands completed 10 exercise units using the whole body electromyostimulation method. The frequency of exercise was once a week.

Results: We have found that after ten weeks of using the whole-body electromyostimulation method, an increase in maximum isometric muscle strength and minimal changes in the assessment of body composition can be achieved. With WB-EMS, muscle imbalances between the upper and lower limbs can be alleviated. Bone density was not affected after ten interventions.

Keywords: whole-body electromyostimulation, body composition, isometric muscle strenght, bone mineral density.